

# Digital Submersible Level Transmitter with Modbus

## **DTM.OCS.S/N - Modbus Level Transmitter**



### **CUSTOMER BENEFITS**

- High precision digital level transmitter with standard Modbus interface
- Fast customization thanks to configurable product design
- High precision pressure measurement over the whole temperature range thanks to electronic compensation
- Adjustment of zero and span setting through Modbus commands

# Technical Specifications

## PRESSURE MEASURING RANGE (MH2O)

	2 ... 5	> 5 ... 20	> 20 ... 250
Overpressure	3 bar	3 x FS	3 x FS
Burst pressure, (1)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (2) ( $\pm$ % FS)	$\leq 0.15$	$\leq 0.05$	$\leq 0.03$
Total Error (3)(4) ( $\pm$ % FS)			
-5...50°C (typ./max.)	$\leq 0.2 / 0.4$	$\leq 0.1 / 0.2$	$\leq 0.1 / 0.15$
-5...80°C (typ./max.)	$\leq 0.4 / 0.8$	$\leq 0.1 / 0.2$	$\leq 0.1 / 0.2$
Long term stability, (5)	< 0.5% FS / < 0.04 mH2O	< 0.2% FS / < 0.04 mH2O	< 0.1% FS / < 0.2% FS

(1) Transducer

(2) System limitation 0.5 mbar

(3) Total error including accuracy, hysteresis, repeatability and temperature influences

(4) The error values are valid within the corresponding temperature range

(5) 1 year (typ. / max.)

## TEMPERATURE MEASURING RANGE, (1) (°C)

	-5 ... 50	-5 ... 80
Accuracy (2)	$\leq \pm 0.5$ °C	$\leq \pm 1.5$ °C
Response time, (3), (4)		
T 0.50	9 s	9 s
T 0.63	15 s	15 s
T 0.90	27 s	27 s

(1) Temperature measurement included

(2) Accuracy of the equipment  $\pm 2$  °C

(3) Time in seconds that the sensor needs to carry out eg 63% of a temperature change

(4) Time of measurement for liquid medium

## TEMPERATURE RANGE

Operating temperature	-5...80 °C (1)
Process temperature	-5...80 °C (1)
Storage temperature	-40...85 °C

(1) For operating temperature > 50°C, PE or FEP cable must be used

## ELECTRICAL SPECIFICATIONS

Power supply (1)	9...30 VDC
Current consumption (typ.)	3 mA @ 24VDC
Resolution	
Pressure	20 Bit
Temperature	0.1°C
Output	
Baudrate	9600 bps
Interface	RS485
Protocol	Modbus RTU, 8n2
Cable length (2)	max. 1000m

(1) Power supply at the sensor

(2) Cable length >500m only Point-to-Point connection possible

## QUALIFICATIONS (1)

	Description	Level	Typical interferences
IEC 60068-2-27	Shock	500 G (3ms)	
IEC 60068-2-64	Vibration	10 G rms (5 ... 2000 Hz)	
EN 55011 EN 55022 EN 61326-1	Emission, class B	0.03...6 GHz	
EN 61000-4-2 EN 61326-1	Electrostatic discharge	8 kV contact / 15 kV air	
EN 61000-4-3 EN 61326-1	Radiated Immunity	10V/m (0.08...6 GHz)	Radio sets, wireless phones, Wi-Fi
EN 61000-4-4 EN 61326-1	Transients (burst)	4 kV	Motors, valves
EN 61000-4-6 EN 61326-1	Conducted RF	10 V (0.15 ... 80 MHz)	Frequency converters
EN 61000-4-5 EN 61326-1	Surge	2 kV	Overvoltage

(1) Only with connected shield

## PHYSICAL SPECIFICATIONS

Materials	
Transducer	Stainless steel (316L / 1.4435), titanium (Gr. 2)
Housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Seals	Viton (Standard), EPDM, Kalrez
Cable	PUR, FEP, PE
Weight (1)	150 g

(1) Specification for a DTM.OCS.S/N, closed, without cable

## CABLE SPECIFICATION

	Pressure	Temperature
FEP	≤ 25 bar	-5 ... 80°C
PE	≤ 25 bar	-5 ... 80°C
PUR	≤ 25 bar	-5 ... 50°C

## Accessories

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### OVERVIEW

10.00.0091	Accessories overview

## Additional documents

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### OPERATING MANUAL

10.00.0430	Operating manual

# Ordering information

	X.	XXXX.	XXXX.	XX.	XXX
<b>Type</b>					
	DTM.OCS.S/N				
<b>Pressure type</b>					
	Gauge	1			
	Absolute (vacuum)	2			
<b>Pressure measuring range</b>					
	2mH2O ... 250mH2O		XX		
	Offset, special adjustment		99		
<b>Process connection</b>					
	Closed (Fig. 1), (Fig. 2)		55		
	Open (Fig. 3)		56		
	G 1/4 M		11		
	G 1/2 M		13		
	Customized connections available		99		
<b>Electrical connection</b>					
	PUR cable, IP 68, black (6)		15		
	PE cable, IP 68, black (6)		13		
	FEP cable, IP 68, black (6)		21		
	PUR cable, Connectable version, IP 68 (2)		07		
	Customized connection available		99		
<b>Output signal</b>					
	RS485, Modbus			62	
<b>Accuracy</b>					
	According to datasheet				3
<b>Temperature range</b>					
	-5 ... 50°C compensated (allowed process temperature: -5...50 °C)				4
	-5 ... 80°C compensated (allowed process temperature: -5...80 °C) (5)				5
<b>Option 1</b>					
	Special oil filling: Anderol Food (for food applications)				G
	Ballast weight 1.4435				B
	Cutting ring connection G 1/2 M				
	Strain relief				
<b>Option 2</b>					
	Version titanium (without ballast weight)				K
<b>Option 3</b>					
	Seals: Viton (standard)				U
	Seals: EPDM				S
	Seals: Kalrez (Level) (8)				T

(2) Demountable version

(5) Cable type PE & FEP, pressure range < 10 bar

(6) Specify type and length of cable

(8) Only with FEP cable available

Fig. 1

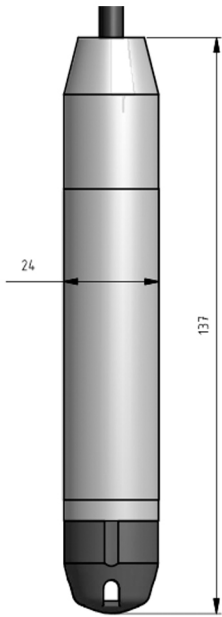


Fig. 2



Fig. 3

